

In the Claims:

All claim amendments and cancellations are made without prejudice or disclaimer. This listing of claims will replace all prior versions, and listings, of the claims in the application:

Claims 1-26 (cancelled)

27. (new) An apparatus for separating mud from water of an air- mud-water mixture, comprising:

a water tank defining a water reservoir and having a water tank inlet and a first water tank outlet in an upper portion thereof and a second water tank outlet in a bottom portion thereof; and

a separation device defining a mud-water reservoir and coupled to and disposed at least partially within the water tank and extending into the water tank so that the water tank at least partially surrounds the separation device, the water and mud-water reservoirs being separated by at least one wall of the separation device to prevent direct fluid communication between the water and mud-water reservoirs, and having a separation device inlet with a first end configured to be in fluid communication with a mud tank and a second end configured to be in fluid communication with the separation device in an upper portion of the separation device such that an air-mud-water mixture being pumped through the separation device inlet enters the separation device with mud and water in the air-mud-water

mixture settling into the mud-water reservoir and air from the air-mud-water mixture being pumped through an outlet in a top portion of the separation device and into the water reservoir;
whereby water droplets entrained in the air entering the water tank are collected in the water reservoir while the air flows out of the first water tank outlet.

28. (new) The apparatus of claim 27, further comprising a baffle positioned within the second reservoir and spaced from the second open end of the separation device inlet so that the air-mud-water mixture being pumped through the separation device inlet sprays against the baffle to deflect the mud and water into the mud-water reservoir.

29. (new) The apparatus of claim 27, further comprising a water ring pump coupled between and in fluid communication with the outlet of the separation device and the water tank inlet for pumping air from the separation device and air entrained water droplets into the water tank.

30. (new) The apparatus of claim 29, wherein the water ring pump is coupled to and in fluid communication with the second water tank outlet for drawing water out of the water tank for use in operating the water ring pump.

31. (new) The apparatus of claim 27, wherein the water tank inlet is oriented approximately tangentially to an outer wall of the water tank to cause cyclonic

separation of the air entrained water droplets from the air, allowing the resulting water to collect in the water tank and the air to exit through the first water tank outlet.

32. (new) The apparatus of claim 29, further comprising a four-way valve having first and second valve inlets and first and second valve outlets, the first and second valve inlets being coupled to the water tank and separation device outlets, the first valve outlet being coupled to the pump and the second valve outlet being open to the vicinity, wherein in a first state the four-way valve directs a flow from the separation device outlet to the first valve outlet and from the water tank outlet to the second valve outlet and in a second state the four-way valve directs a flow from the second valve outlet to the first valve outlet and from the water tank outlet to the separation device outlet.

33. (new) The apparatus of claim 27, further comprising a mud tank separate and apart from the separation device having a mud tank outlet in fluid communication with the separation device inlet.

34. (new) The apparatus of claim 33, wherein the mud tank is substantially horizontally oriented and comprises a cover on one end thereof configured to be swivelled upwardly to allow removal of solid materials contained therein.

35. (new) The apparatus of claim 27, wherein the separation device is substantially enveloped by the water tank and wherein an outer wall of the separation device forms an inner wall of the water tank.

36. (new) The apparatus of claim 35, wherein the water tank and separation device are substantially cylindrically shaped and an air-water mixture flowing into the water tank inlet is directed substantially tangentially to an inner cylindrical wall of the water tank to form a cyclone in the water tank.

37. (new) An apparatus for separating water from a mud-water mixture, comprising:
a water ring pump having a pump inlet and a pump outlet;
a water tank defining a water reservoir and having a water tank inlet coupled to the pump outlet, a first water tank outlet coupled to the water ring pump to supply water to the water ring pump for operation of the water ring pump and a second water tank outlet in an upper portion thereof, the water tank inlet being oriented approximately tangentially to a wall of the water tank to form a cyclonic separator in the water tank;
a gravitational separation device defining a mud-water reservoir in a lower portion thereof and coupled to and disposed at least partially within the water tank so that the water tank at least partially surrounds the separation device, the water and mud-water reservoirs being separated by walls of the separation device to prevent direct fluid communication between the water and mud-water reservoirs,

and a separation device inlet having a first open end in fluid communication with a mud tank and a second open end in fluid communication with the separation device at a position above the mud-water reservoir; whereby an air-mud-water mixture being pumped by the water ring pump through the separation device inlet sprays into the separation device causing mud and water in the air-mud-water mixture to settle into the mud-water reservoir and the air to be pumped through an outlet in an upper portion of the separation device, through the water ring pump and into the water tank through the water tank inlet, separating water droplets from the air by cyclonic separation, depositing the resulting water in the water reservoir and forcing air within the water tank to flow out of the water tank through the water tank outlet.

38. (new) The apparatus of claim 36, further comprising a baffle positioned within the second reservoir and spaced from the second open end of the separation device inlet so that the air-mud-water mixture being pumped through the separation device inlet sprays against the baffle.

39. (new) The apparatus of claim 36, wherein the separation device is at least partially housed within the water tank.

40. (new) The apparatus of claim 36, further comprising a four-way valve having first and second valve inlets and first and second valve outlets, the first and second valve

inlets being coupled to the water tank and separation device outlets, the first valve outlet being coupled to a pump that is coupled to the water tank inlet and the second valve outlet being in fluid communication with the vicinity.

41. (new) The apparatus of claim 40, wherein in a first state the four-way valve directs a flow from the separation device outlet to the first valve outlet and from the water tank outlet to the second valve outlet and in a second state the four-way valve directs a flow from the second valve outlet to the first valve outlet and from the water tank outlet to the separation device outlet.

42. (new) The apparatus of claim 37, wherein the separation device inlet comprises a tube substantially vertically extending within the second reservoir from a bottom of the separation device defining the mud reservoir between the tube and the walls of the separation device and the baffle is positioned above the open end of the separation device inlet.

43. (new) The apparatus of claim 36, wherein the mud tank is separate and apart from the water tank and separation device.

44. (new) The apparatus of claim 43, wherein the mud tank is substantially horizontally oriented and comprises a cover on one end thereof configured to be swivelled upwardly to allow removal of solid materials contained therein.

45. (new) The apparatus of claim 36, wherein the separation device is contained within and surrounded by the water tank, with the separation device and water tank sharing a common wall.

46. (new) The apparatus of claim 45, wherein the water tank and separation device are substantially cylindrically shaped and an air-water mixture flowing into the water tank inlet is directed substantially tangentially to a curved wall of the water tank to form the cyclonic separator in the water tank.